DINOSAURS!

•DISCOVER THE GIANTS OF THE PREHISTORIC WORLD•

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• DISCOVER THE GIANTS OF THE PREHISTORIC WORLD •

IDENTIKIT

Your guide to three more popular dinosaurs

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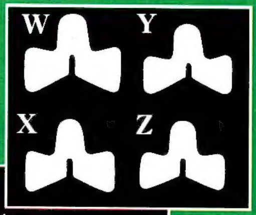
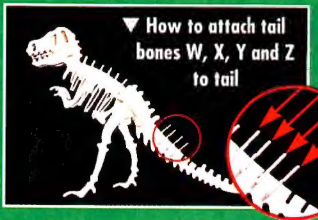
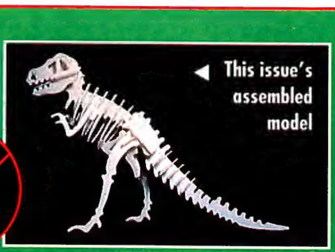


This ▶ issue's model parts



▼ How to attach tail bones W, X, Y and Z to tail



◀ This issue's assembled model

▲ Assembled model from Part 6

Push the tail bones W and X (the two largest) into the two highest open slots in the tail. Y (the next largest) fits into the next open slot. And Z (the smallest) fits into the next slot. There will be three open slots at the end of the tail.

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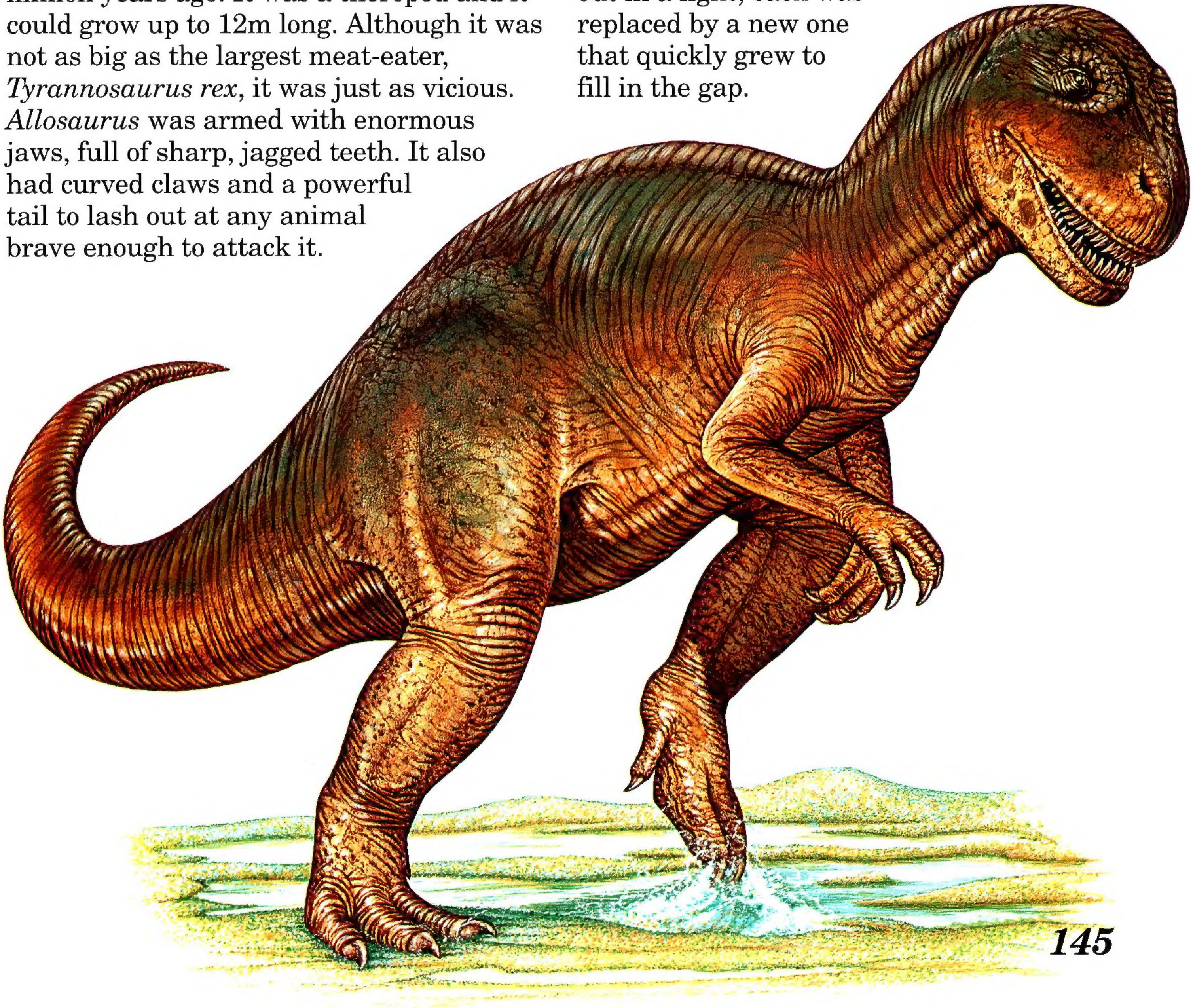
ALLOSAURUS

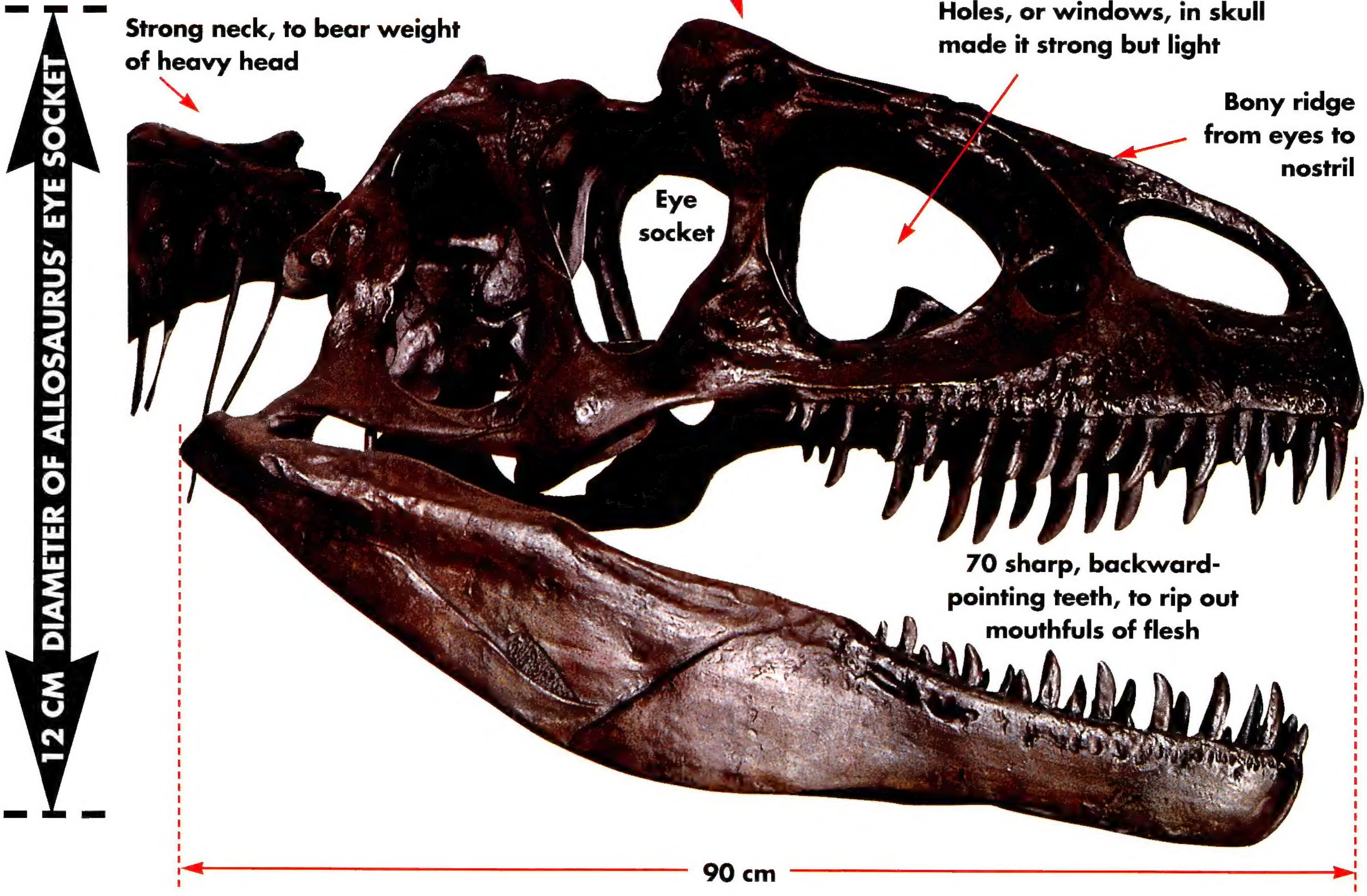
***Allosaurus* was as tall as a giraffe, but, unlike this gentle plant-eater, it was a lethal killer that may have hunted its prey in packs.**

Allosaurus was one of the fiercest dinosaurs that stalked the plains of North America, Africa, Australia and China about 150 million years ago. It was a theropod and it could grow up to 12m long. Although it was not as big as the largest meat-eater, *Tyrannosaurus rex*, it was just as vicious. *Allosaurus* was armed with enormous jaws, full of sharp, jagged teeth. It also had curved claws and a powerful tail to lash out at any animal brave enough to attack it.

TEETH THAT CURVED

If a tall man could have stood on another's shoulders when *Allosaurus* was alive, he would have been at just the right height to peer into its mouth. He would have seen rows of about 70 saw-edged teeth, each as sharp as a steak-knife. All its teeth curved backwards, perfect for biting the flesh of its prey and preventing it from escaping. If any of its teeth fell out or were wrenched out in a fight, each was replaced by a new one that quickly grew to fill in the gap.




Bony lumps above each eye
Strong neck, to bear weight of heavy head
Holes, or windows, in skull made it strong but light
Bony ridge from eyes to nostril
Eye socket
12 CM DIAMETER OF ALLOSAURUS' EYE SOCKET
70 sharp, backward-pointing teeth, to rip out mouthfuls of flesh
90 cm

A FAST MOVER

Scientists think that *Allosaurus* moved at about 8 km/h. A jogger could have just about kept up with it as it strode along on its back legs, like an enormous bird. Experts can also tell from fossil footprints that each step *Allosaurus* took was about as long as a car.

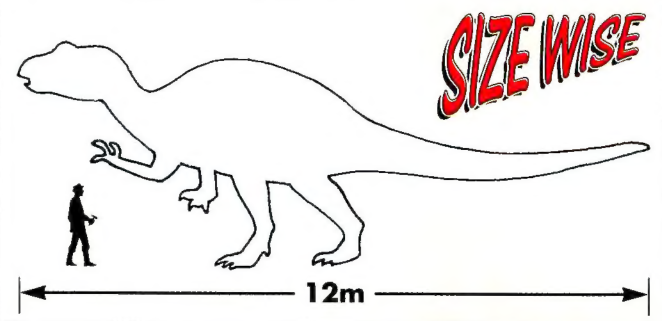
CLAWS

The four toes on both feet ended in sharp, bird-like claws. Three of them pointed forwards and one backwards. Each claw was strong and sharp enough to tear open the soft underbelly of any other dinosaur. *Allosaurus* also had a claw on each of the three fingers of both hands. It used them to attack and hold on to prey.

MONSTER FACTS

- **NAME:** *Allosaurus* (al-oh-saw-rus) means 'strange lizard'
- **SIZE:** about 12m long
- **FOOD:** meat, especially other dinosaurs
- **LIVED:** about 150 million years ago in the Late Jurassic in North America, Africa and China

SIZE WISE



Modern jackals (left) bite into a carcass they have found. *Allosaurus* was probably a scavenger feeding on dead bodies, too.

KILLING YOUNG

Several members of the *Allosaurus* pack charged in to attack, biting and clawing at defenceless *Diplodocus* until it slumped to the ground to be ripped apart by the rest of the pack. *Allosaurus* would have had no hesitation in attacking the young of these large dinosaurs.

SCAVENGER ON THE PROWL

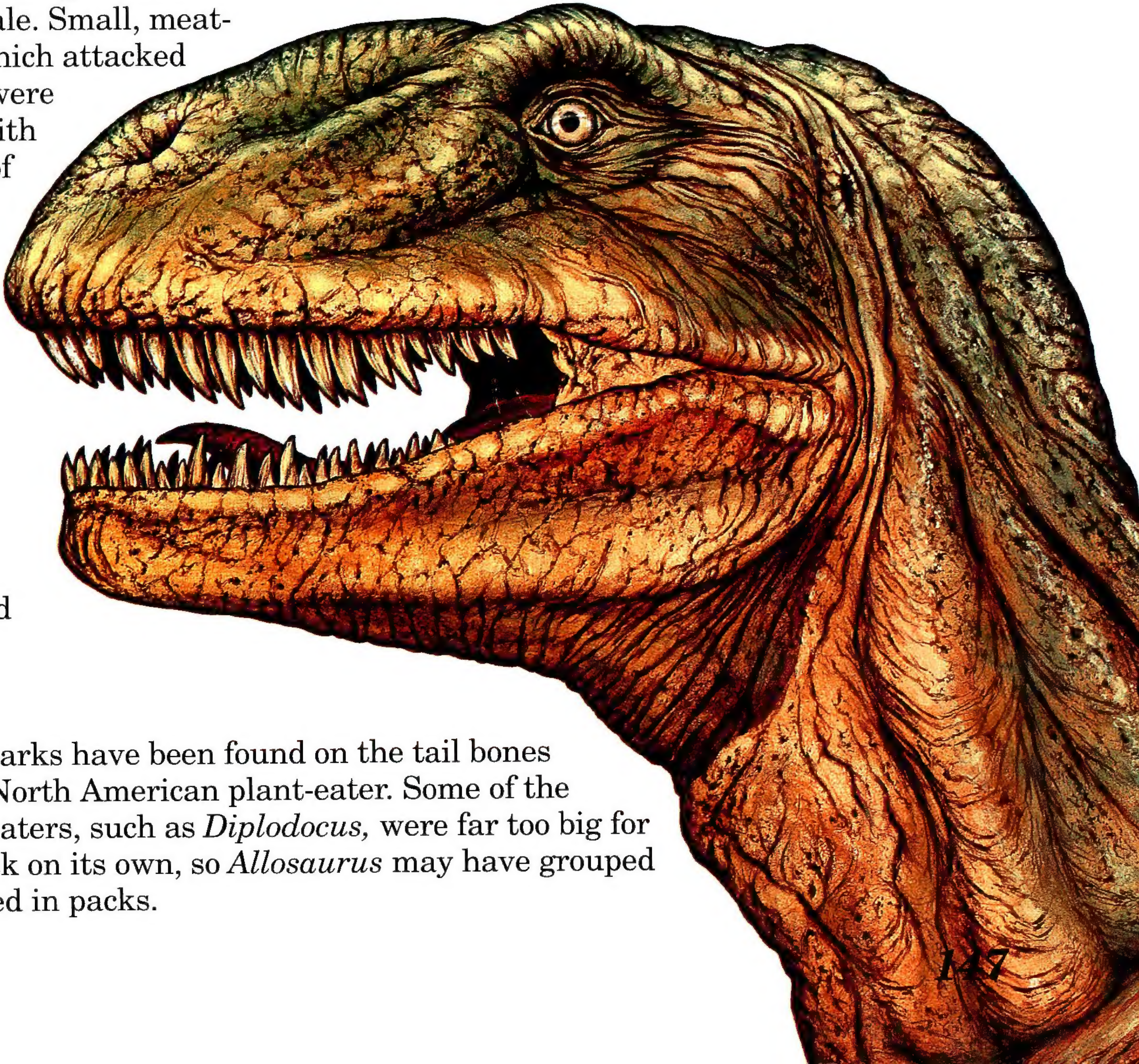
Catching fresh meat was a hit and miss business, so *Allosaurus* probably also fed on the left-overs of animals killed by other meat-eaters. Animals that do this are called scavengers.

WELL BALANCED

Allosaurus probably held up its long, powerful tail when walking or running, to balance the weight of its body. Its tail had about 50 bones in it and was useful for lashing out at a rival during the mating season – when male fought male for the attentions of a female. Small, meat-eating dinosaurs which attacked *Allosaurus'* young were probably seen off with one mighty sweep of the tail.

GOOD HUNTERS

Allosaurus was so large that it must have needed lots of meat to fill its ever-hungry belly. It preyed on the plant-eating dinosaurs that lived in the same area.



TOOTH MARKS

Allosaurus' toothmarks have been found on the tail bones of *Apatosaurus*, a North American plant-eater. Some of the really huge plant-eaters, such as *Diplodocus,* were far too big for *Allosaurus* to attack on its own, so *Allosaurus* may have grouped together and hunted in packs.

MAMENCHISAURUS

Half of *Mamenchisaurus'* total length was made up of its slender neck, which was longer than three cars parked bumper to bumper.

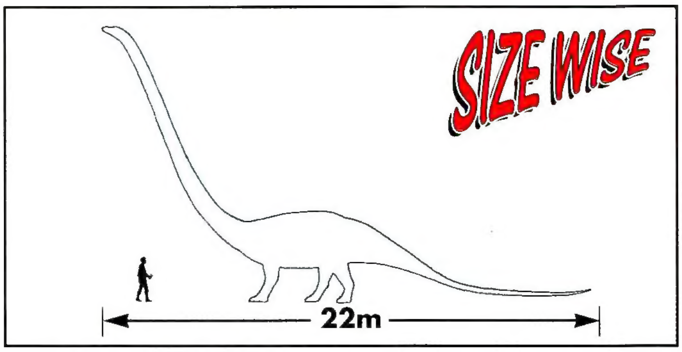
From the tip of its tail to the end of its snout, *Mamenchisaurus* was 22m long. Eleven metres of that was its neck. It had the longest neck of any animal that has ever lived. *Mamenchisaurus* could easily have stood on the ground and peered into the windows of a three-storey house.

STIFF-NECKED

Mamenchisaurus' long neck was supported by long, overlapping bones, which must have made the neck quite stiff and slow to turn. The neck also had strong muscles which supported its small, snake-like head. *Mamenchisaurus* was as long as a tennis court, but its body was slim. Its backbone was hollowed out in places, which made it very light for its size.

FOREST DWELLER

145 million years ago, the area where this dinosaur lived was covered with vast, dense forests of redwood and sequoia trees. Herds of *Mamenchisaurus* lumbered along, using their small, peg-like teeth to nip off leaves and small shoots on the tree tops that were out of the reach of other dinosaurs.

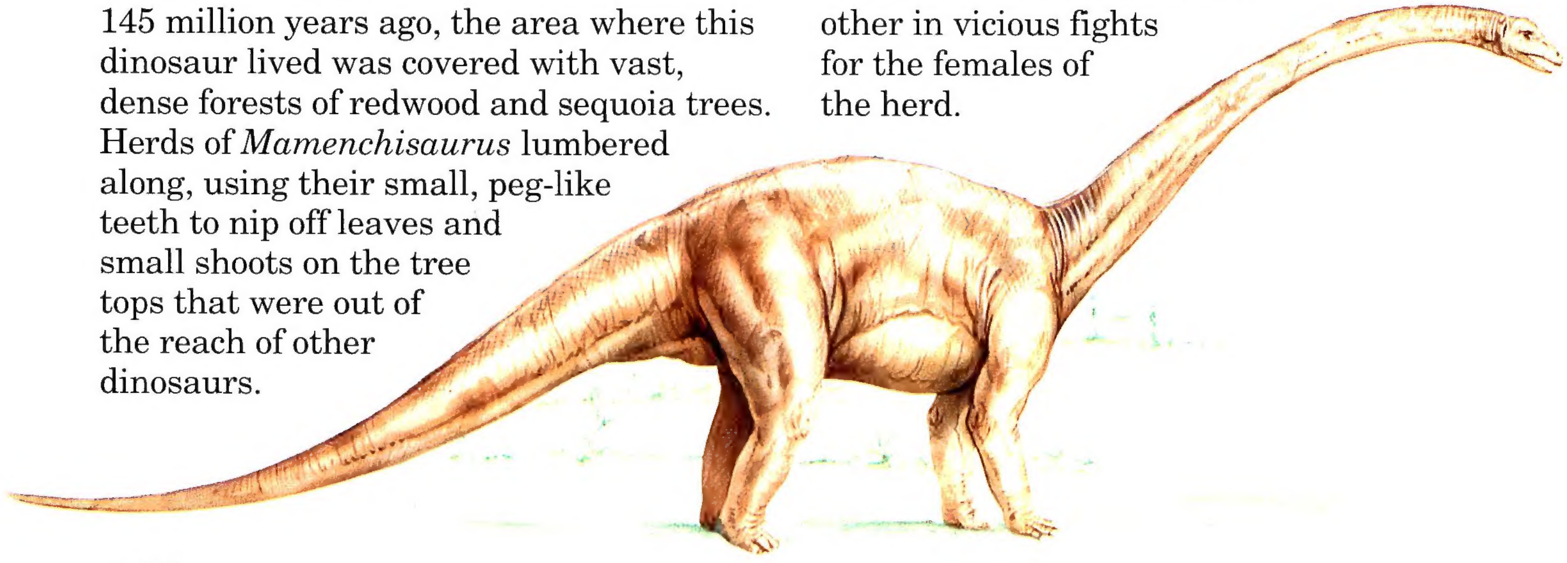


MONSTER FACTS

- **NAME:** *Mamenchisaurus* (ma-mench-ih-saw-rus) means 'lizard from Mamenchi' (the place in China where its fossil remains were first found)
- **SIZE:** 22m long and 5m high
- **FOOD:** plants
- **LIVED:** 145 million years ago in China during the Late Jurassic Period

ON FOUR LEGS

Mamenchisaurus walked on four legs, dragging its long, thin tail along the ground behind it. During the mating season, male *Mamenchisaurus* may have used their tails to lash each other in vicious fights for the females of the herd.



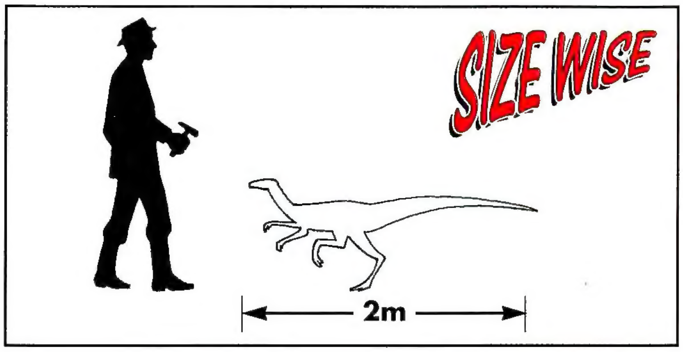
COELURUS

***Coelurus* would eat anything it came across – even the rotting carcasses of animals killed by other dinosaurs.**

Coelurus was a nippy little dinosaur, with a small head about the same size as a man's hand. Its teeth were razor-sharp and curved. Once they had sunk into another animal, it was almost impossible for the prey to wrench itself free. *Coelurus* also used its powerful teeth and jaws to rip flesh from the rotting carcasses of prey killed by other meat-eaters.

A LIGHT, STIFF TAIL

Coelurus had very light bones and a stiff tail with hollow bones in it. Its front legs were short and slim. Its hands were small and weak, with three curved claws. *Coelurus* had similar, slightly blunter claws on the toes of both back feet. It used its hands to snatch at its prey and to keep it in its grasp, while ripping it to death with the claws on its feet.

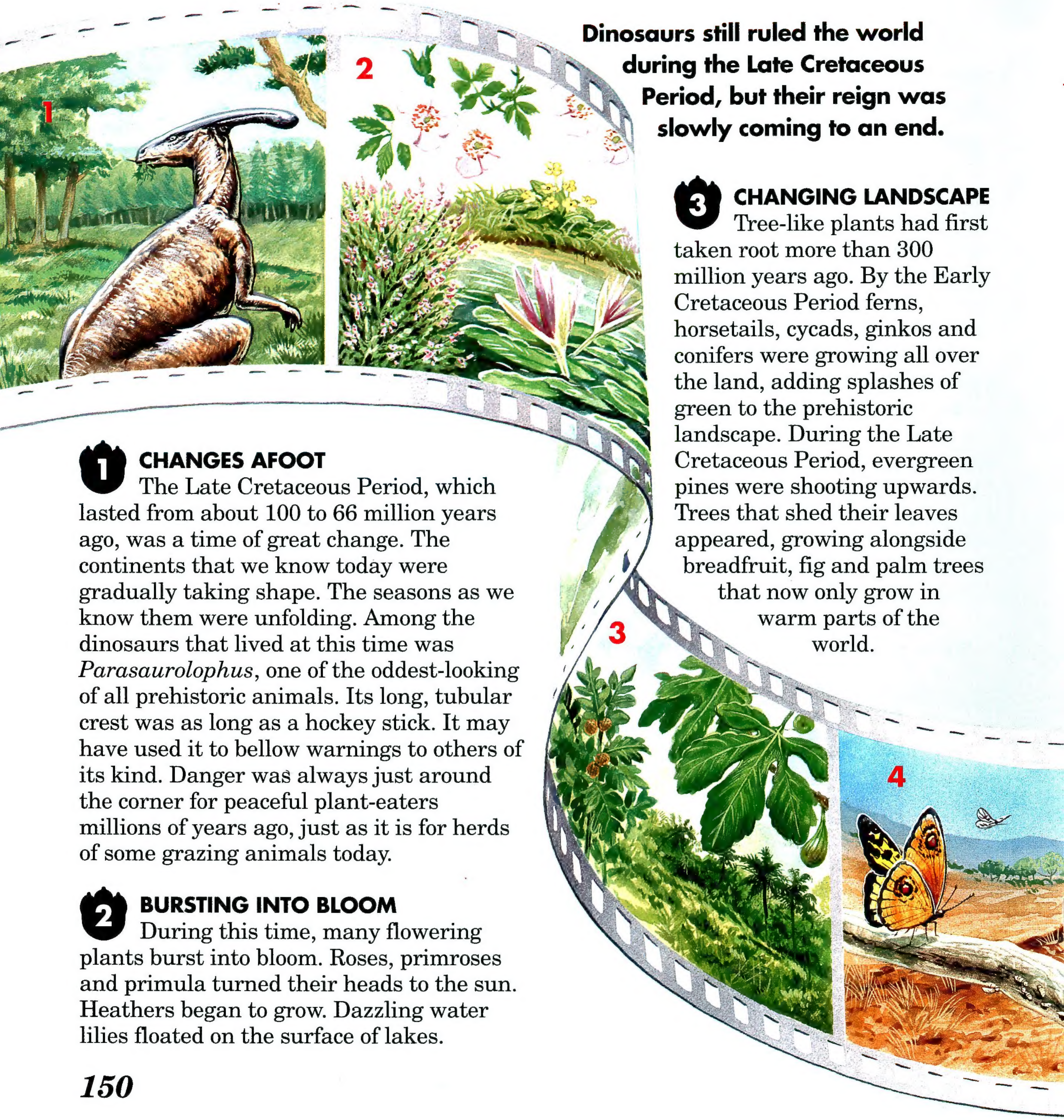


MONSTER FACTS

- **NAME:** *Coelurus* (seel-oo-rus) means 'hollow tail'. It was called this because its tail was made up of hollow bones
- **SIZE:** 2m long and 1.8m high
- **FOOD:** meat, usually dead dinosaurs it found
- **LIVED:** about 140 million years ago during the Late Jurassic Period in North America

End of an era

Dinosaurs still ruled the world during the Late Cretaceous Period, but their reign was slowly coming to an end.



1 CHANGES AFOOT

The Late Cretaceous Period, which lasted from about 100 to 66 million years ago, was a time of great change. The continents that we know today were gradually taking shape. The seasons as we know them were unfolding. Among the dinosaurs that lived at this time was *Parasaurolophus*, one of the oddest-looking of all prehistoric animals. Its long, tubular crest was as long as a hockey stick. It may have used it to bellow warnings to others of its kind. Danger was always just around the corner for peaceful plant-eaters millions of years ago, just as it is for herds of some grazing animals today.

2 BURSTING INTO BLOOM

During this time, many flowering plants burst into bloom. Roses, primroses and primula turned their heads to the sun. Heathers began to grow. Dazzling water lilies floated on the surface of lakes.

3 CHANGING LANDSCAPE

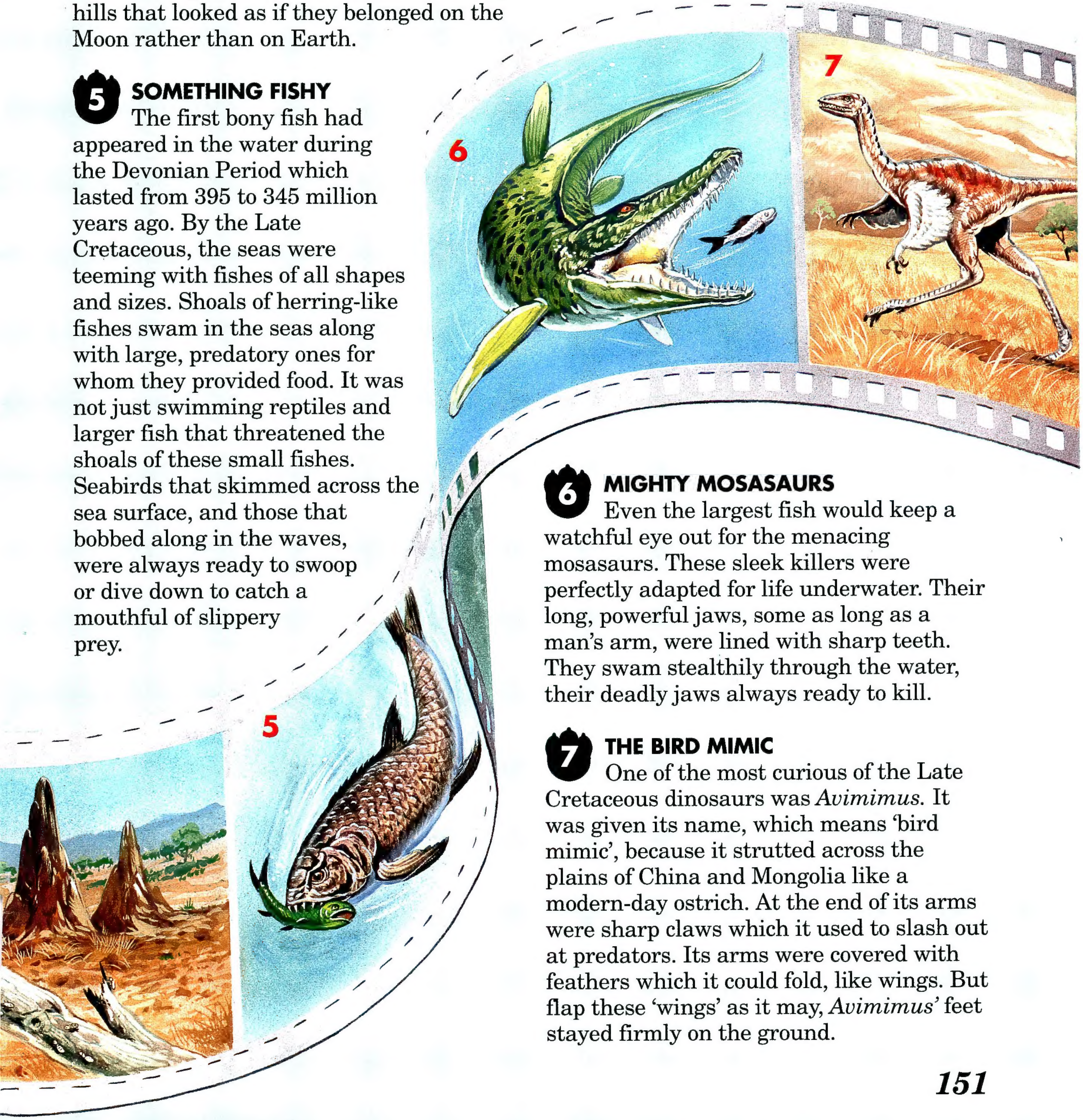
Tree-like plants had first taken root more than 300 million years ago. By the Early Cretaceous Period ferns, horsetails, cycads, ginkos and conifers were growing all over the land, adding splashes of green to the prehistoric landscape. During the Late Cretaceous Period, evergreen pines were shooting upwards. Trees that shed their leaves appeared, growing alongside breadfruit, fig and palm trees that now only grow in warm parts of the world.

4 THE BUZZING BEGINS

Insects, such as bees and butterflies, took to the air, carrying pollen from flower to flower. On and under the ground, termites began to build their extraordinary hills that looked as if they belonged on the Moon rather than on Earth.

5 SOMETHING FISHY

The first bony fish had appeared in the water during the Devonian Period which lasted from 395 to 345 million years ago. By the Late Cretaceous, the seas were teeming with fishes of all shapes and sizes. Shoals of herring-like fishes swam in the seas along with large, predatory ones for whom they provided food. It was not just swimming reptiles and larger fish that threatened the shoals of these small fishes. Seabirds that skimmed across the sea surface, and those that bobbed along in the waves, were always ready to swoop or dive down to catch a mouthful of slippery prey.

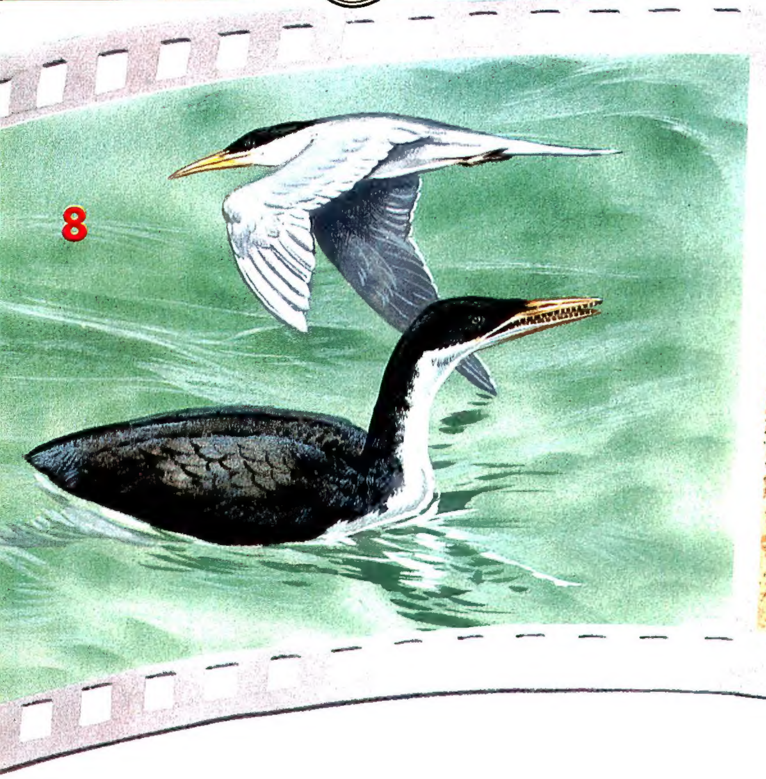


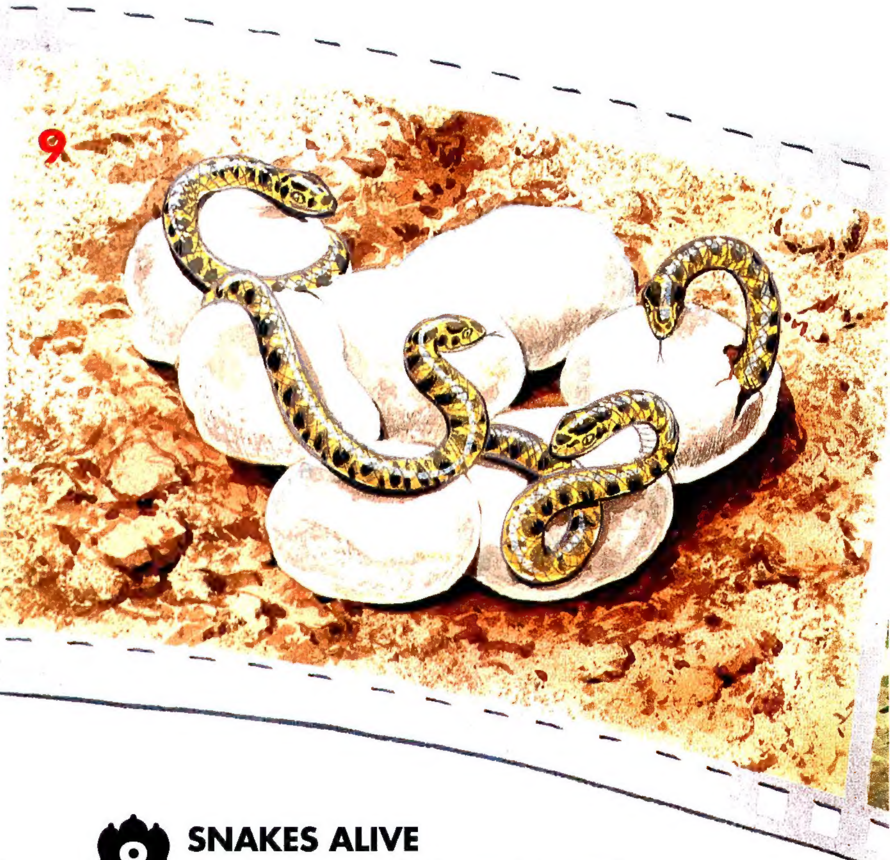
6 MIGHTY MOSASAURS

Even the largest fish would keep a watchful eye out for the menacing mosasaurs. These sleek killers were perfectly adapted for life underwater. Their long, powerful jaws, some as long as a man's arm, were lined with sharp teeth. They swam stealthily through the water, their deadly jaws always ready to kill.

7 THE BIRD MIMIC

One of the most curious of the Late Cretaceous dinosaurs was *Avimimus*. It was given its name, which means 'bird mimic', because it strutted across the plains of China and Mongolia like a modern-day ostrich. At the end of its arms were sharp claws which it used to slash out at predators. Its arms were covered with feathers which it could fold, like wings. But flap these 'wings' as it may, *Avimimus'* feet stayed firmly on the ground.





8 LIFE ON THE OCEAN WAVE

Ichthyornis was one of the fast-flying birds that took to the skies during the Late Cretaceous Period. It may have looked like a modern tern as it flew along, just above the surface of the water, ready to swoop down and take a passing fish into its toothed bill. *Baptornis* had wings, but it couldn't fly. It swam the lakes and seas of North America, its head splashing into the water, like someone bobbing for apples on Hallowe'en, looking for a fish to eat.

14 THE END OF AN ERA

Dinosaurs didn't die out overnight. But given that they dominated the prehistoric world for 160 million years, they vanished surprisingly quickly. Experts have puzzled over this for years. Some scientists believe that a gigantic rock crashed into the Earth with such force that a cloud of dust and steam rose and blocked out the Sun for months, even years. The dinosaurs froze to death in numbing snow-drifts. The fur-clad mammals lived on to rule the world.

9 SNAKES ALIVE

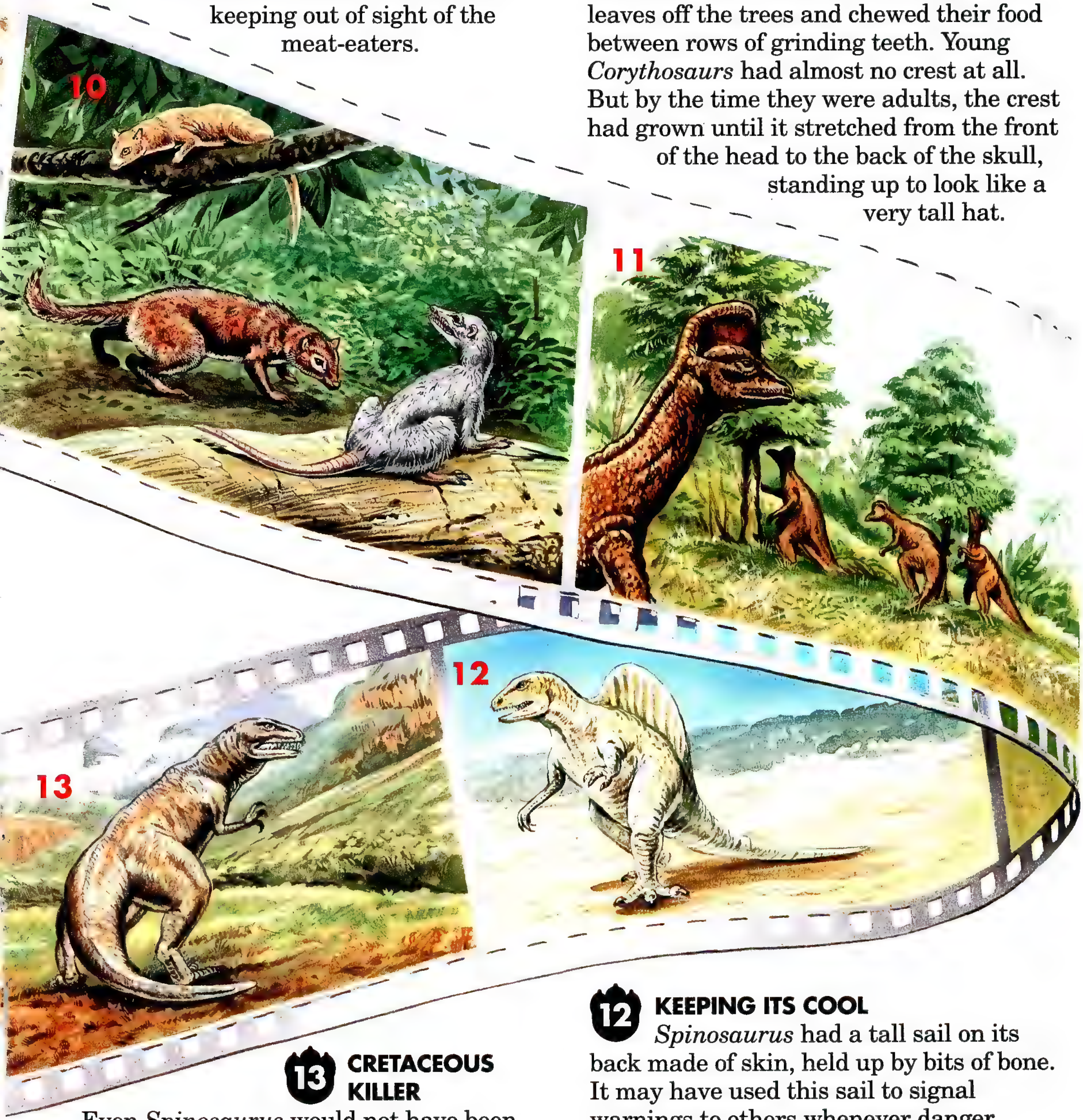
Snakes first slithered into the animal kingdom about 100 million years ago. They evolved from an Early Cretaceous creature called *Pachyrhachis,* which had a snake-like body and the head of a lizard. Most snakes take no interest in their eggs or their young, although one exception is the female python. She carefully coils her body around her eggs to incubate them.

10 MEET THE MAMMALS

Mammals, such as *Zalambdalestes*, *Purgatorius* and *Protungulatum*, scurried around the Late Cretaceous lands keeping out of sight of the meat-eaters.

11 THE HELMET LIZARDS

Herds of *Corythosaurs* roamed the plains of North America, rearing up on their powerful back legs. They nipped leaves off the trees and chewed their food between rows of grinding teeth. Young *Corythosaurs* had almost no crest at all. But by the time they were adults, the crest had grown until it stretched from the front of the head to the back of the skull, standing up to look like a very tall hat.



12 KEEPING ITS COOL

Spinosaurus had a tall sail on its back made of skin, held up by bits of bone. It may have used this sail to signal warnings to others whenever danger threatened – which it often did.

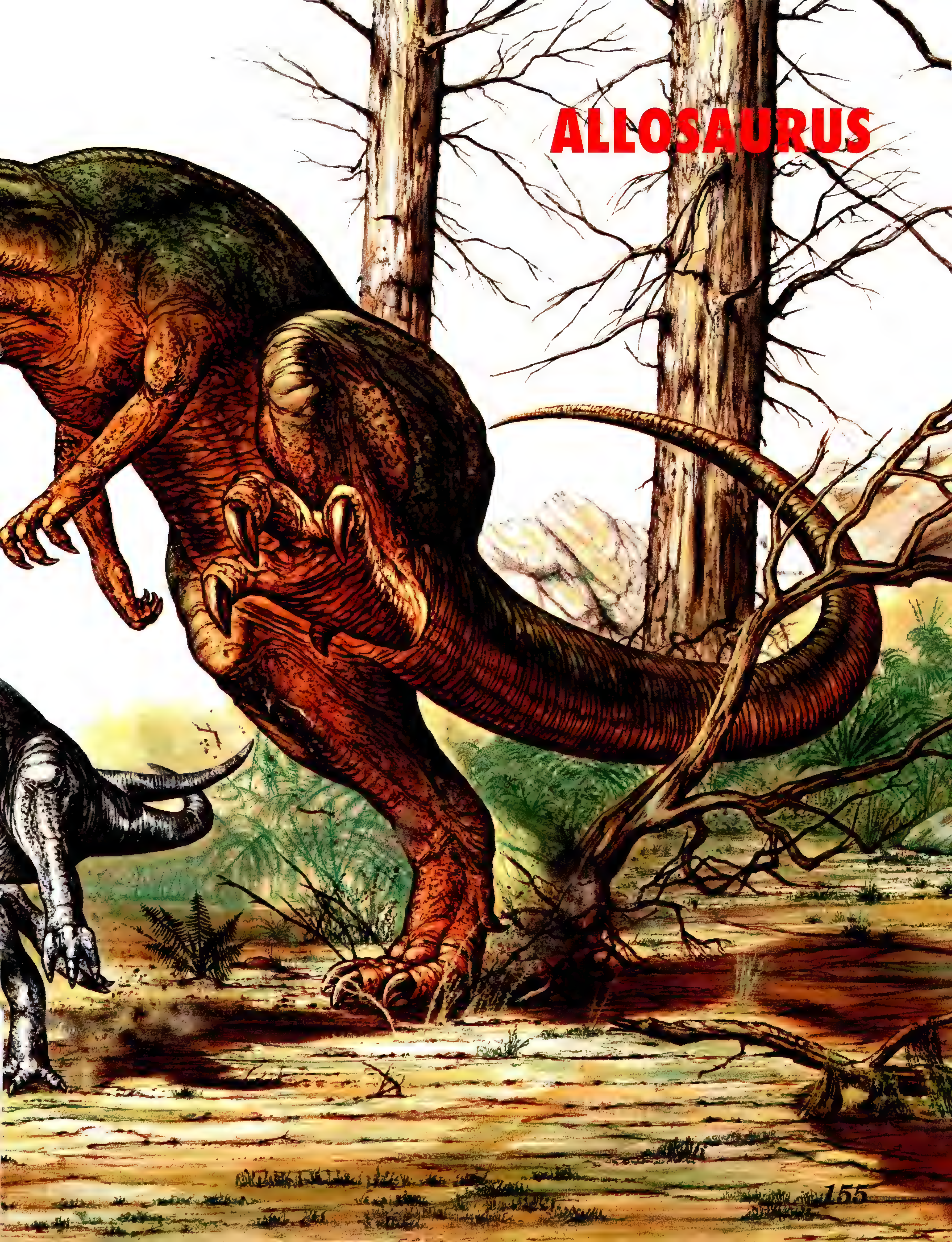
13 CRETACEOUS KILLER

Even *Spinosaurus* would not have been safe from Mongolian menace *Tarbosaurus*.

GIANTS OF THE PAST

Allosaurus appears, as if from nowhere, and bares its massive teeth. Taken by surprise, two *Dryosaurus* rush for safety. The small plant-eaters feel the predator's breath on their necks. They hear its huge body crashing through the undergrowth, and know that they are about to be gripped by *Allosaurus'* huge claws.

ALLOSAURUS



3-D Gallery

13

DIPLODOCUS

- A sauropod
- Lived about 140 million years ago in North America
- Measured 27m long and weighed 11 tonnes
- Ate plants

3-D Gallery 14

T REX

- A theropod
- Lived 67-70 million years ago in North America and China
- Measured 14m long and 5.6m high
- Ate meat

CLAWS

Sharp and deadly or broad and gripping, dinosaurs used their claws to attack prey or to defend themselves.

Many dinosaurs had claws of one sort or another. Some plant-eaters, like *Iguanodon* or *Apatosaurus,* used their claws to fend off attackers. Their fearsome claws flew into action whenever they sensed danger to themselves or their young. Many meat-eaters had razor-sharp claws, which they used to kill prey. One, *Baryonyx*, may have used its claws to scoop fish out of water.

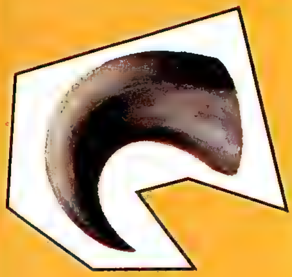
THE SPIKE!

Plant-eating *Iguanodon* had a very deadly thumb spike, shaped like a horn, sticking out at right angles at the side of its hand. Woe betide an attacker when *Iguanodon* jabbed at it. The needle-sharp point pierced the skin and soft flesh until the broad base stopped it going further. The spike was this shape so that it could be pulled out and stabbed back in again very quickly.

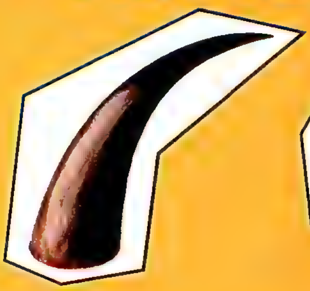
A FISHING HOOK

Baryonyx had claws as long as a man's forearm. They curved from the base to a spear-sharp point. These fearful claws could cut through flesh in an instant. When tugged free, they tore shreds of skin and muscle from the prey's body. The shallow spoon shape of the inside curve allowed *Baryonyx* to catch fish, just like bears do today.

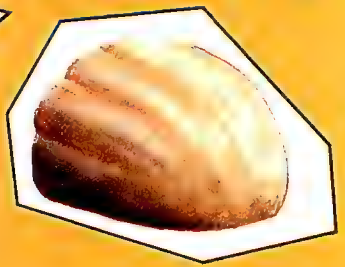
GET YOUR CLAWS INTO THIS!



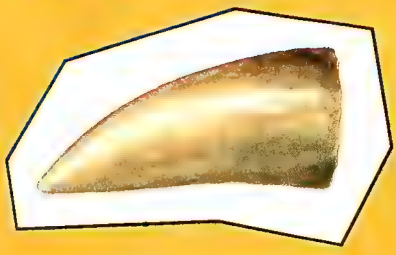
1 Vicious, sickle-shaped weapon



2 Long, curved claw for spearing prey



3 Big, heavy claw to strike the enemy



4 Sharp spike for spearing attackers

KICKING KILLER

A sharp claw on the inside of each front leg swung into action whenever *Apatosaurus* was attacked by a pack of hungry predators. Even the strongest armour offered little defence from a heavy and piercing punch from this almost clumsy-looking claw. It was designed to stun an attacker as well as cut into its body. A fierce, well-aimed kick from one of these claws, with all the strength of *Apatosaurus'* battleship bulk behind it, must have sent an attacker reeling backwards to lick its wounds.

IT'S A FACT

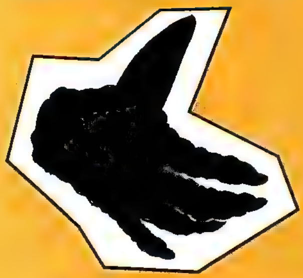
FIGHTING FOSSILS

Millions of years ago, a *Velociraptor* had attacked and killed a *Protoceratops*, gripping its neck with its front claws, and kicking it in the belly with its huge foot claw. *Protoceratops* must have fought back furiously. 80 million years later, their fossilized remains were unearthed in the Gobi Desert, in Mongolia. They lay as they had died – locked together in their fight to the death.

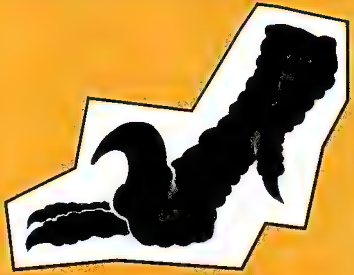
SICKLE-SHAPED

This fleet-footed killer had claws on its feet that looked like upward sweeping scythes: and they could cut through a victim's flesh as easily as a well-swung scythe harvests hay. Once *Velociraptor* got its curved claws into its prey, it was impossible for the animal to tear itself free. With the prey hooked in one claw, *Velociraptor* would gouge chunks of meat off its body with the other.

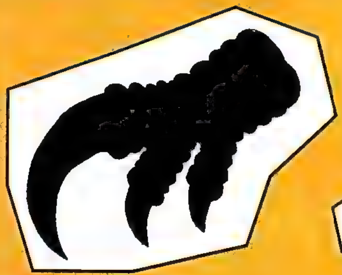
Which claw goes with which hand or foot? Match each claw to a hand or foot and the hand or foot to one of the dinosaurs on these pages. Answers at the bottom of the page.



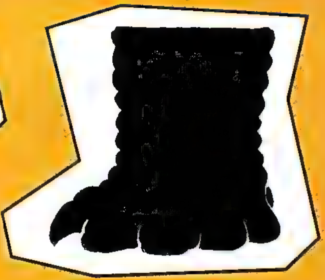
A Four fingers – and a very special thumb



B Strong, slender leg for a fast mover



C Hand to hook and hold food



D Large and lumbering foot

ANSWERS: Iguanodon 4,A; Baryonyx 2,C; Apatosaurus 3,D; Velociraptor 1,B

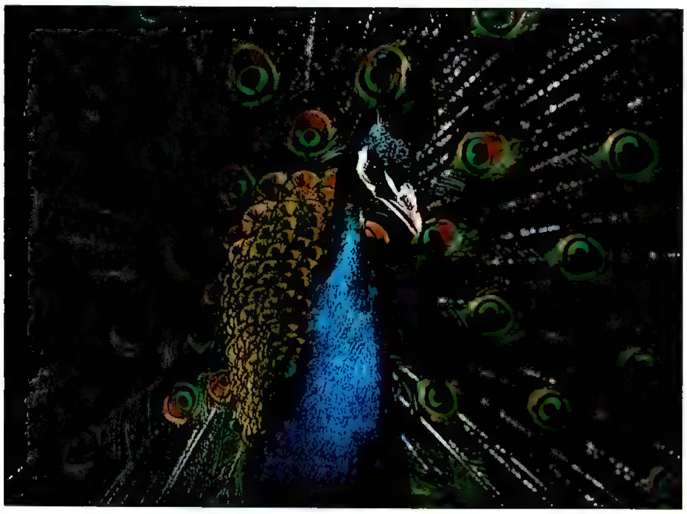
Showing off

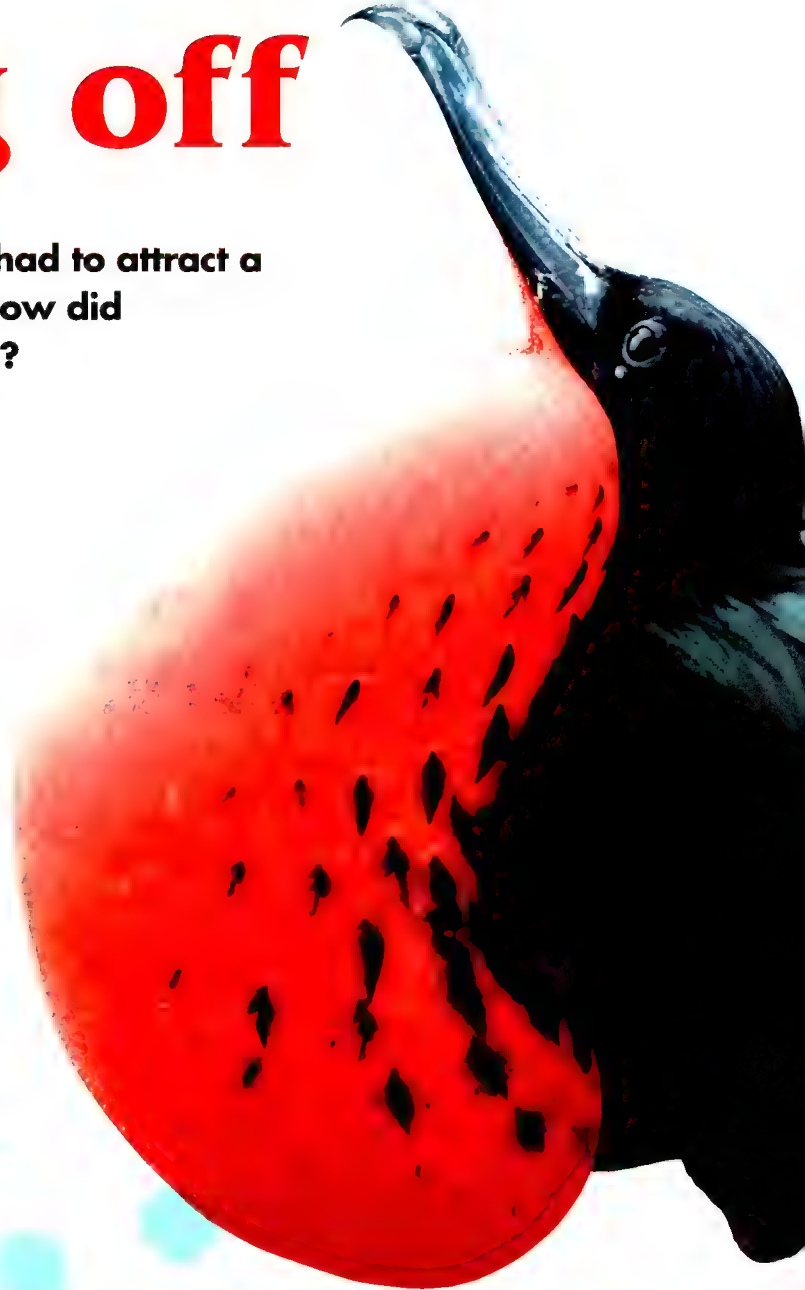
Before he could mate, a male dinosaur had to attract a female. But how could he do this, and how did the female decide which male to choose?

We only know about dinosaurs from fossils, so it's hard to tell exactly how they behaved. To learn more about dinosaurs, scientists look for clues in the modern animal kingdom. They study today's animals and use what they discover to find out how dinosaurs might have lived. Some of the clues to dinosaur behaviour are on these pages. If you put your thinking cap on you can follow the footsteps and work out how some male dinosaurs might have attracted a mate.

CLUE 1

When the peacock fans out its tail, the beautiful pattern created by the coloured feathers can be clearly seen. Why do you think it does this?





CLUE 2

The male frigate bird doesn't have a colourful tail like the peacock. But at certain times of the year he puffs out his neck and makes it stand out brightly. But why do you think he needs to do this?

Right: When experts pieced together early *Pentaceratops* fossil finds they realised that this dinosaur had neck frills. These large frills may have been for defence, but some scientists think that they had another purpose.

CLUE 3

It's not just the males of the animal kingdom that send out signals. This female baboon is displaying herself on purpose. Can you think why?

HERE'S WHY!

All these creatures are showing off because it's the time of year when animals mate. They do this in order to produce their young. Hopefully, the young will live long enough to mate. This will help to ensure that the species survives.

ATTRACTING A MATE

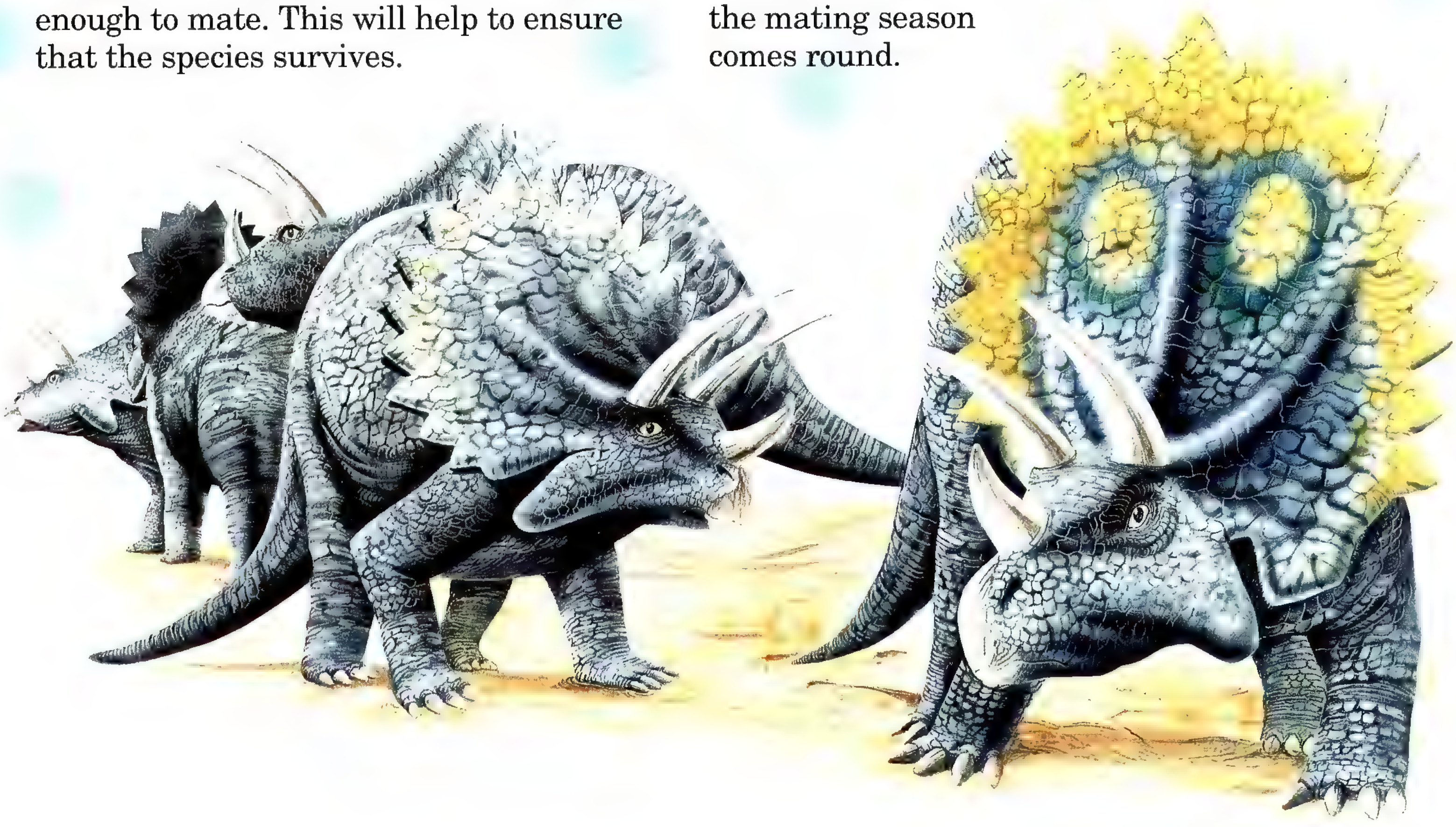
The peacock and the male frigate bird are showing off in order to attract female birds. The baboon is telling the males of her troop that she is ready to mate.

BRIGHTENING UP ITS FRILL

Experts believe that some dinosaurs may have behaved like the peacock, frigate bird and baboon during the mating season. Dinosaurs had to attract a mate. The male *Pentaceratops* in this picture is making his frill stand out. He has also brightened it up by making it more colourful. A female has shown that she is ready to mate by trimming her fringe with a little colour.

LAYING EGGS

The male mates with the female, who then lays the eggs. Some time later, the eggs hatch. The young *Pentaceratops* will grow up and when they are adults they will do what their parents did when the mating season comes round.



Fighting for the future

Not all male animals attract mates by brightening themselves up. Some are prepared to fight great battles in order to continue their family line.

The animal kingdom can be a very violent one. Some animals hunt and kill others for food. Animal mothers fight to protect their young. Some other animals attack out of fear. But there is another reason why, at certain times of the year, males, who usually live peacefully side by side in the same herd, square up to each other in 'winner takes all' struggles.

STANDING TALL

Bull elephant seals confront each other in Antarctica. They are both standing up on their tails. Why should they be facing each other like this?

LOCKED IN COMBAT

Look at these two deer. Why do you think they have locked their antlers together? Why do you think they will pull and shove until one of them gives up the struggle and skulks off? Here's a clue. The two seals and the two deer are males.

THE REASON IS...

The bull seals and the deer stags are fighting for the right to mate with a female. Experts believe that dinosaur males may have fought each other in the same way as these modern-day animals.

Right: These two male elephants are fighting it out for a female. They grab each other's trunks, rear up on their hind legs and cross tusks, grappling until one gives in. Their behaviour is probably like that of *Triceratops* (above), even though *Triceratops* lived 72 million years ago.

HEAD TO HEAD

The two *Triceratops* (the name means 'three-horned face') at the top of the page are doing exactly the same thing as the stags. Their horns will stay locked like this until one of them finally gives in and shakes himself free. The winner then mates with a willing female. The loser will lumber off to lick his wounds until he is strong enough to battle it out again for a female, this time with a different male.

DANGER TO THE SPECIES!

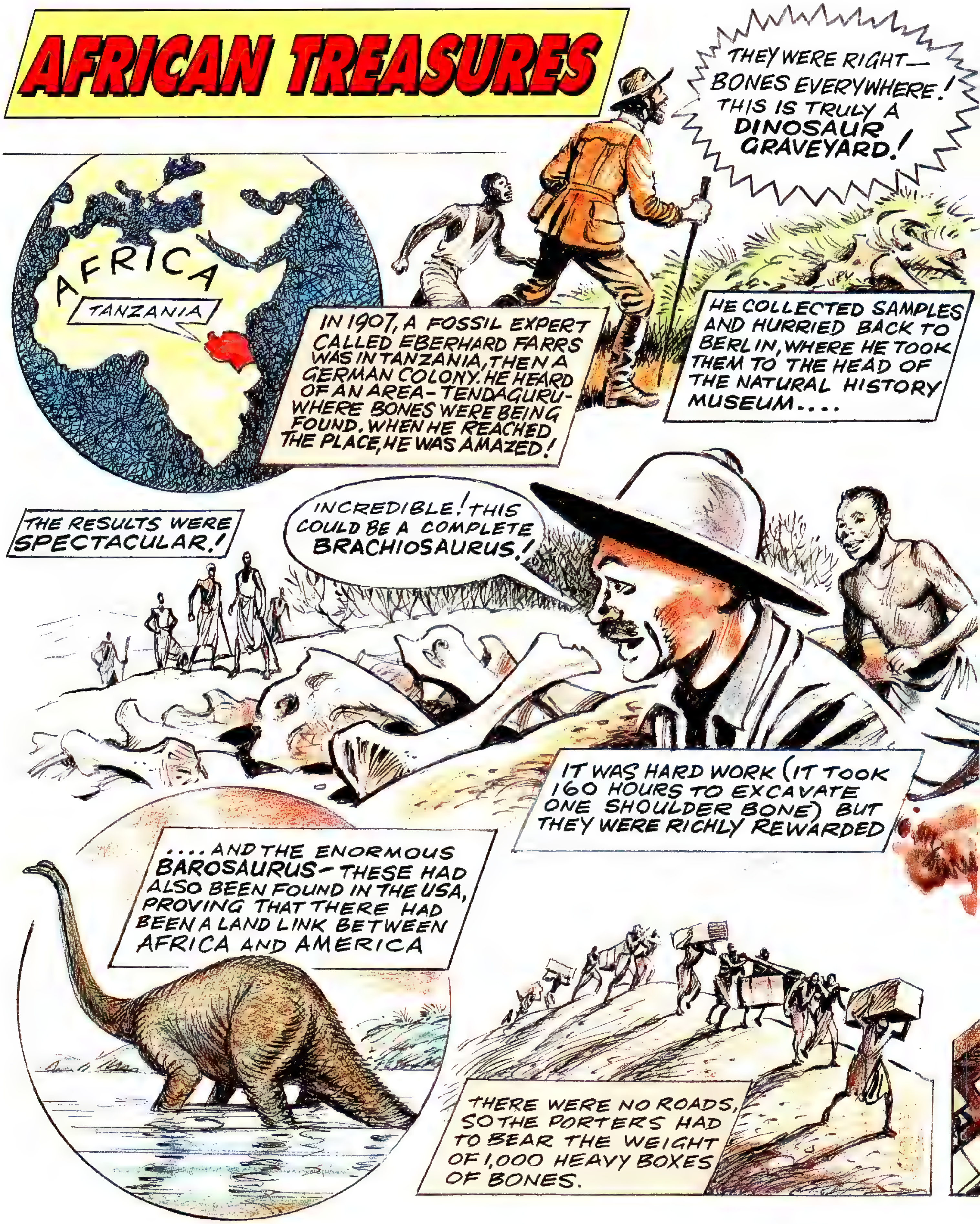
It was extremely important that enough dinosaurs should live to fight for females again. Dead dinosaurs would not be able to breed. If too many males had died out because of these vicious battles of strength, the future of the whole species would have been endangered.

IT'S A FACT

MAKING SOUND SIGNALS

Experts think that dinosaurs had a good sense of hearing. The middle parts of their ears were thin and delicate. They were well suited to picking up the sounds of other animals. It is thought that some dinosaurs may have sent out mating calls to each other – just like croaking frogs do in spring, today.

AFRICAN TREASURES


AFRICA
TANZANIA
THEY WERE RIGHT— BONES EVERYWHERE! THIS IS TRULY A DINOSAUR GRAVEYARD!
INCREDIBLE! THIS COULD BE A COMPLETE BRACHIOSAURUS!

IN 1907, A FOSSIL EXPERT CALLED EBERHARD FARRS WAS IN TANZANIA, THEN A GERMAN COLONY. HE HEARD OF AN AREA – TENDAGURU – WHERE BONES WERE BEING FOUND. WHEN HE REACHED THE PLACE, HE WAS AMAZED!

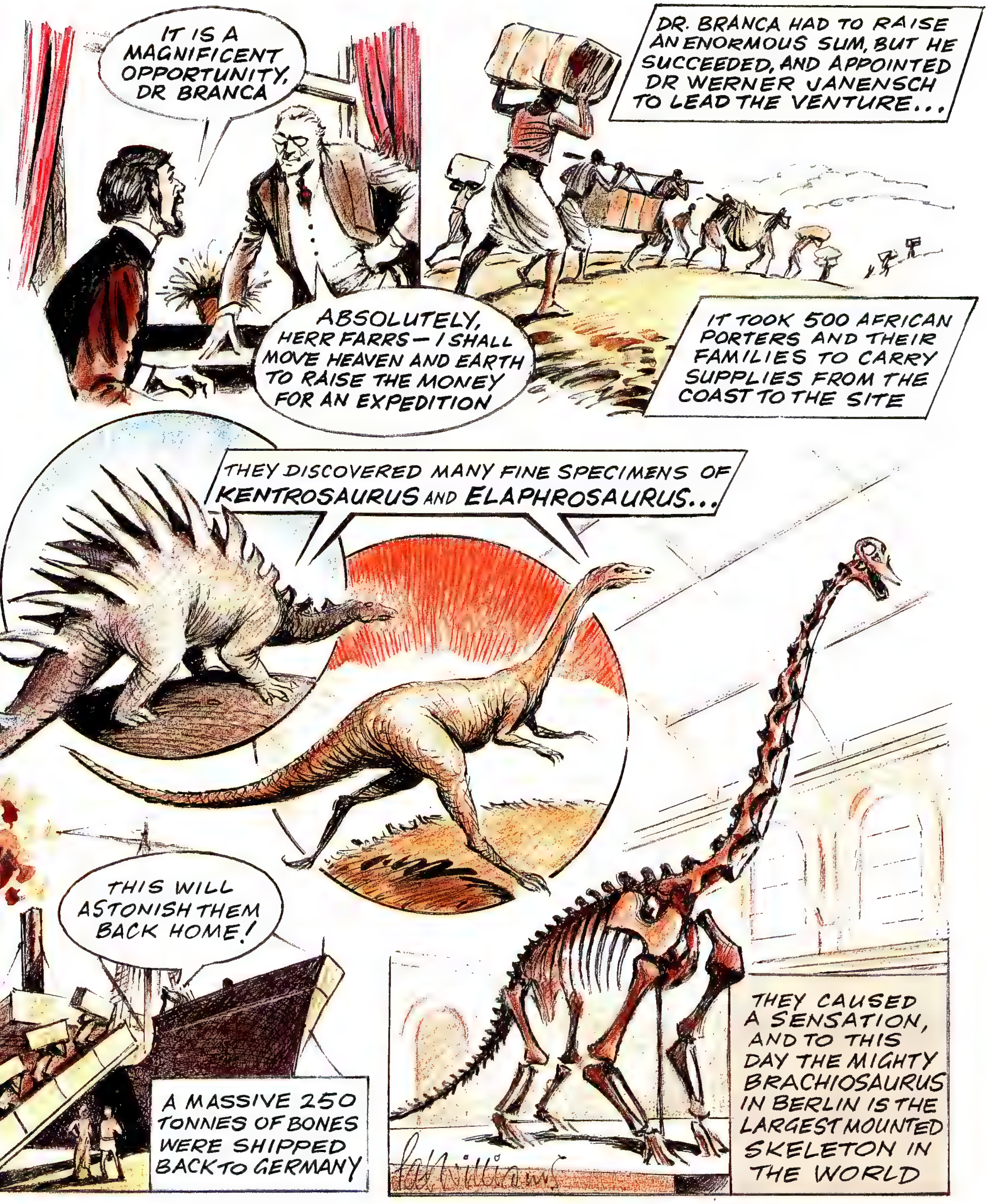
HE COLLECTED SAMPLES AND HURRIED BACK TO BERLIN, WHERE HE TOOK THEM TO THE HEAD OF THE NATURAL HISTORY MUSEUM....

THE RESULTS WERE SPECTACULAR!

IT WAS HARD WORK (IT TOOK 160 HOURS TO EXCAVATE ONE SHOULDER BONE) BUT THEY WERE RICHLY REWARDED

....AND THE ENORMOUS BAROSAURUS – THESE HAD ALSO BEEN FOUND IN THE USA, PROVING THAT THERE HAD BEEN A LAND LINK BETWEEN AFRICA AND AMERICA

THERE WERE NO ROADS, SO THE PORTERS HAD TO BEAR THE WEIGHT OF 1,000 HEAVY BOXES OF BONES.


IT IS A MAGNIFICENT OPPORTUNITY, DR BRANCA
ABSOLUTELY, HERR FARRS — I SHALL MOVE HEAVEN AND EARTH TO RAISE THE MONEY FOR AN EXPEDITION
DR. BRANCA HAD TO RAISE AN ENORMOUS SUM, BUT HE SUCCEEDED, AND APPOINTED DR WERNER JANENSCH TO LEAD THE VENTURE...
IT TOOK 500 AFRICAN PORTERS AND THEIR FAMILIES TO CARRY SUPPLIES FROM THE COAST TO THE SITE
THEY DISCOVERED MANY FINE SPECIMENS OF KENTROSAURUS AND ELAPHROSAURUS...
THIS WILL ASTONISH THEM BACK HOME!
A MASSIVE 250 TONNES OF BONES WERE SHIPPED BACK TO GERMANY
THEY CAUSED A SENSATION, AND TO THIS DAY THE MIGHTY BRACHIOSAURUS IN BERLIN IS THE LARGEST MOUNTED SKELETON IN THE WORLD

Improve and test your knowledge with...

DINO Fact File

Fascinating dinosaur facts to read and 10 fun questions to answer.

Family lunch

When fossil hunters found the remains of *Coelophysis* in New Mexico, USA, they were surprised to find the skeletons of young ones inside them. The bones were too large to belong to unborn *Coelophysis*, so experts think that, if there was nothing else to eat, *Coelophysis* would devour young of their own species.

1 What did *Allosaurus* eat?
a) meat
b) fish
c) plants

2 How long was *Mamenchisaurus'* neck?
a) 10m
b) 11m
c) 12m

3 What was *Coelurus'* best weapon?
a) its claws
b) its clubbed tail
c) its spikes

4 Why did *Pentaceratops* colour their frills?
a) to deter attackers
b) to attract a mate
c) to camouflage themselves

5 What did *Parasaurolophus* use its crest for?
a) to cool itself
b) to warm itself
c) to bellow warnings

6 When did the first bony fish appear?
a) during the Triassic
b) during the Devonian
c) during the Jurassic

7 What does *Avimimus* mean?
a) ape-like
b) bird mimic
c) big headed

8 Which of these was not a dinosaur?
a) *Corythosaurus*
b) *Spinosaurus*
c) *Baptornis*

9 Which of these animals was a mammal?
a) *Allosaurus*
b) *Coelurus*
c) *Zalambdalestes*

One big bit of land

When the dinosaurs first appeared, about 230 million years ago, the continents that we know today didn't exist. There was just one big landmass which scientists call Pangaea. It later split into two parts. Our continents began to take shape toward the end of the reign of the dinosaurs as the two huge land areas started to break up further.

The long and the short of it

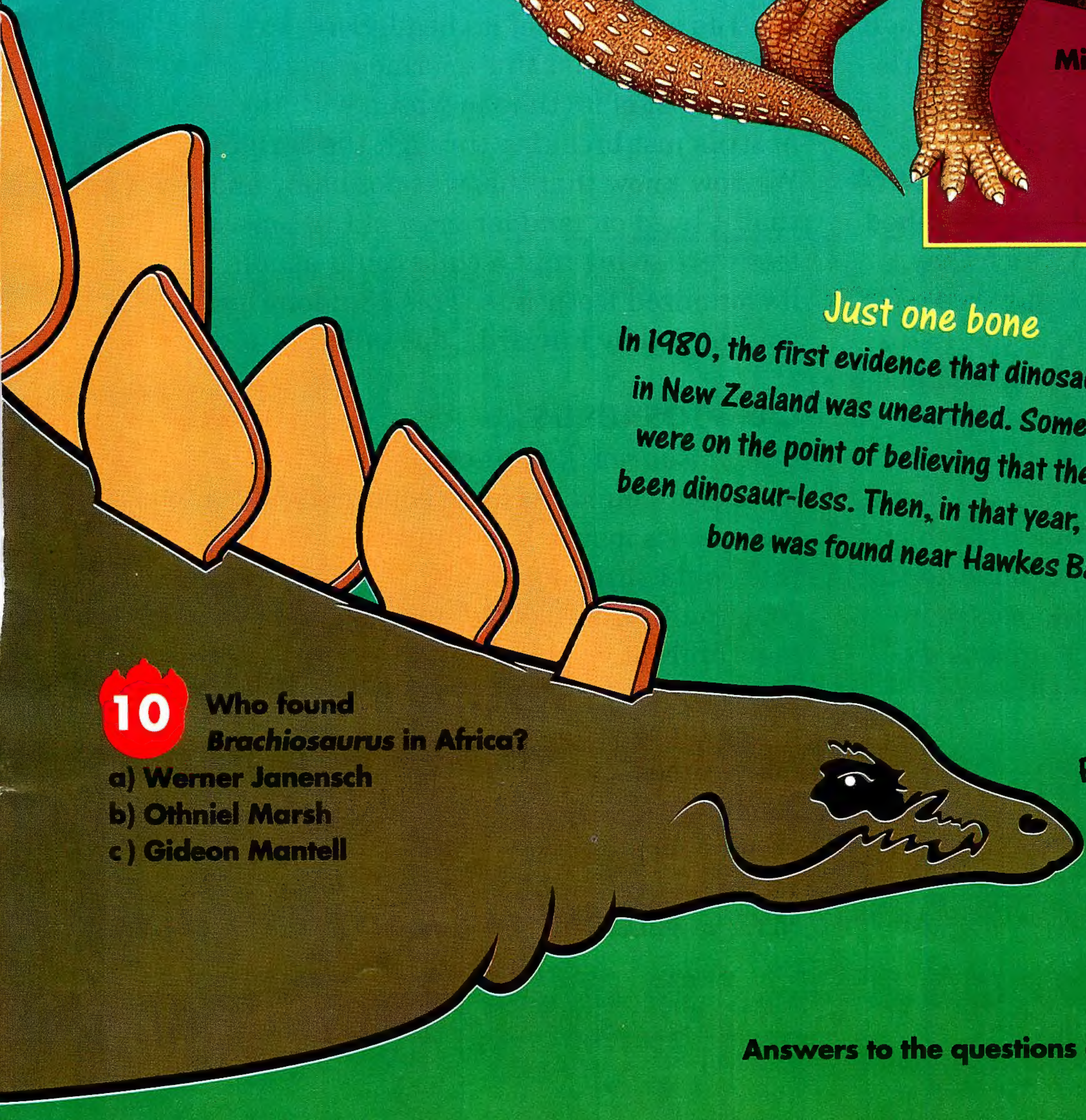
The dinosaur with the longest name is Micropachycephalosaurus. The shortest is Minmi – the only Australian ankylosaur found so far.

Eggspensive

Bidding was brisk at the London auction where a 70 million year-old Hypselosaurus egg was being sold. It eventually went for a staggering £5,500!

Just one bone

In 1980, the first evidence that dinosaurs had lived in New Zealand was unearthed. Some scientists were on the point of believing that the area had been dinosaur-less. Then, in that year, a dinosaur bone was found near Hawkes Bay.



10 **Who found *Brachiosaurus* in Africa?**

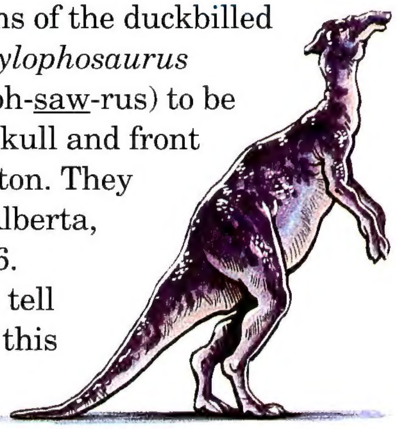
a) Werner Janensch
b) Othniel Marsh
c) Gideon Mantell

Definitely not a dinosaur

Experts don't agree about whether or not there is a huge beast lurking in the depths of Loch Ness in Scotland. They do agree that it's not a dinosaur. Dinosaurs couldn't survive underwater for any length of time.

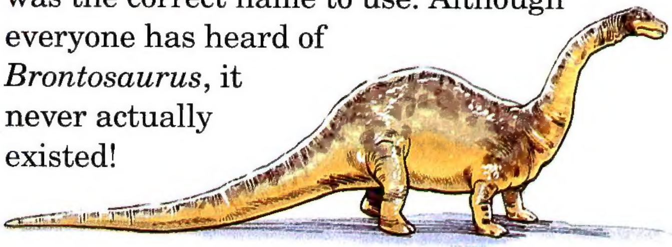
BRACHYLOPHOSAURUS 75 MYA

The first remains of the duckbilled dinosaur *Brachylophosaurus* (brack-ee-loaf-oh-saw-rus) to be dug up were a skull and front part of its skeleton. They were found in Alberta, Canada, in 1936. Scientists could tell from them that this dinosaur was about 7m long. *Brachylophosaurus* had a little spike on its head that pointed backwards and a short crest made of bone. Its name means 'short-crested lizard'.



BRONTOSAURUS 150 MYA

Othniel Marsh and Edward Cope described the bones of a huge dinosaur which they called *Brontosaurus* (bron-toe-saw-rus) during the famous Bone Wars of the 1870s. It measured 20m from snout to tail. That's longer than two buses parked bumper to bumper. It probably munched about half a tonne of plants every day. Marsh had found the bones of another giant dinosaur, which he called *Apatosaurus*. Experts later decided that *Apatosaurus* and *Brontosaurus* were the same creature and that *Apatosaurus* was the correct name to use. Although everyone has heard of *Brontosaurus*, it never actually existed!



C

CALLOVOSAURUS 127 MYA

Callovosaurus (kah-low-vo-saw-rus) trundled through prehistoric marshlands chewing mouthfuls of plants as it went. Sometimes it walked on all fours, and sometimes it reared up on its back legs. It was 3.5m long. When it stood up, it could have looked into the top of a double-decker bus.

CAMARASAURUS 130 MYA

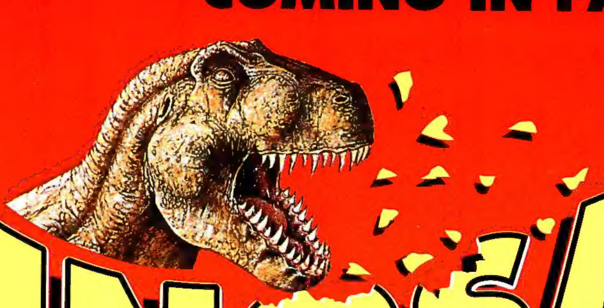
Camarasaurus (kam-ar-a-saw-rus) had nostrils on the top of its head. Some experts used to think that this enormous plant-eater spent most of its time in water, with the nostrils just breaking through the surface. We now know that this was not likely and that it lived on land for most of the time. Its feet were so big that a child could paddle in its fossilized footprints. This 18m-long giant was named by Edward Cope in 1877.

CAMPTOSAURUS 130 MYA

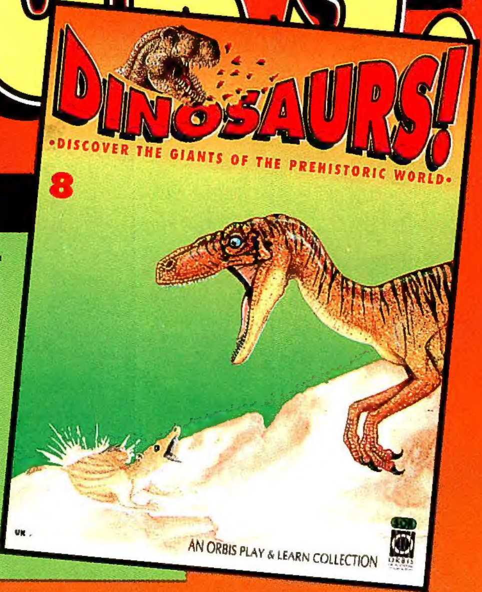
Camptosaurus (kamp-toe-saw-rus) fossils have been found in North America and Europe. Its mouth had hundreds of teeth that could shred tough plants. *Camptosaurus* could puff its cheeks out and take in big mouthfuls of plants, which it chewed many times before swallowing.

MYA = MILLION YEARS AGO

COMING IN PART 8 OF



DINOSAURS!


DINOSAURS!
DISCOVER THE GIANTS OF THE PREHISTORIC WORLD
8
UK
AN ORBIS PLAY & LEARN COLLECTION
ORBIS

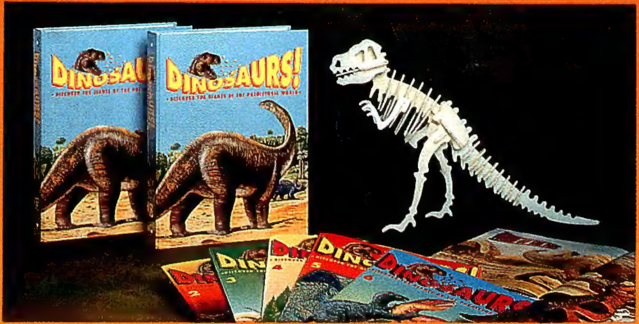
Deinonychus **went for its prey with claws as long and as sharp as a sword. IDENTIKIT investigates this terrifying creature AND two more of its reptilian relatives.**

PLUS

Three more pieces for your awesome *T rex* skeleton.

AND

The creatures that lived in the seas when dinosaurs roamed the land swim into DINOSAUR WORLD.



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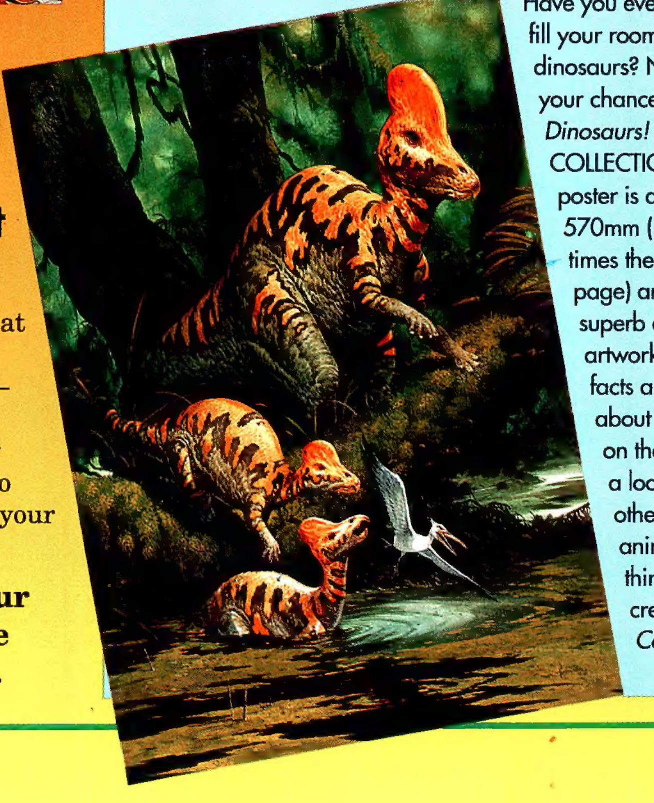
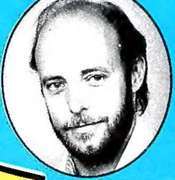
THE DINOSAURS! POSTER COLLECTION



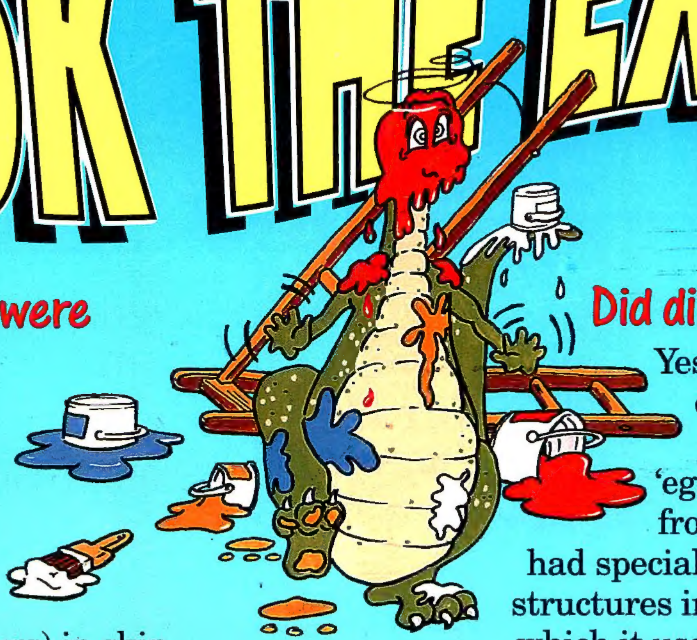
Have you ever wanted to fill your room with dinosaurs? Now you have your chance – with the *Dinosaurs!* POSTER COLLECTION. Each poster is a 820 x 570mm (nearly eight times the size of this page) and features a superb dinosaur artwork. You'll find facts and figures about the dinosaur on the back – PLUS a look at some other prehistoric animals. The third poster is crested *Corythosaurus*.

ANSWERS TO DINO FACT FILE QUESTIONS: 1.a 2.b 3.a 4.b 5.c 6.b 7.b 8.c 9.c 10.a



Dr. David Norman of Cambridge University answers your dinosaur questions

ASK THE EXPERT

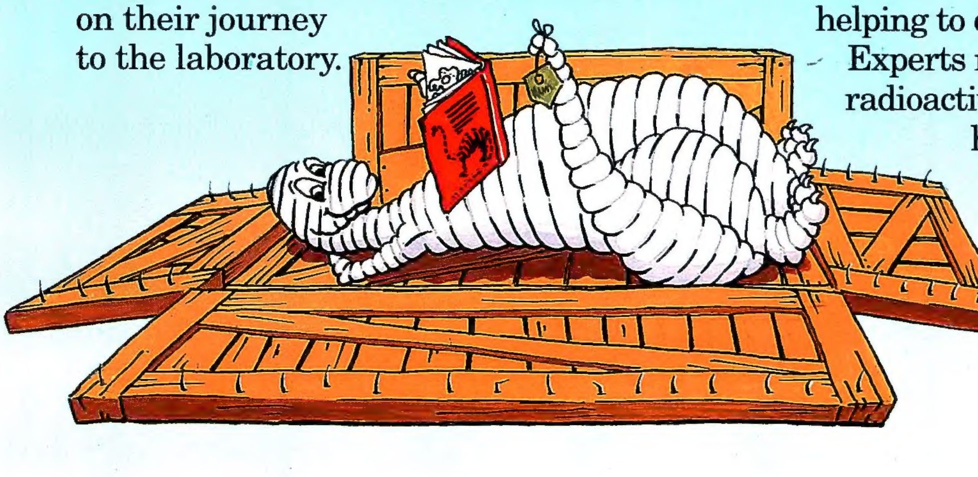


What colour were dinosaurs?

No one knows what colour each dinosaur was, because fossils do not preserve the pigments (colours) in skin. Experts do think, however, that dinosaurs were coloured to blend in with their surroundings, so they were probably mostly green or brown, but some may have been brightly coloured while they were looking for mates.

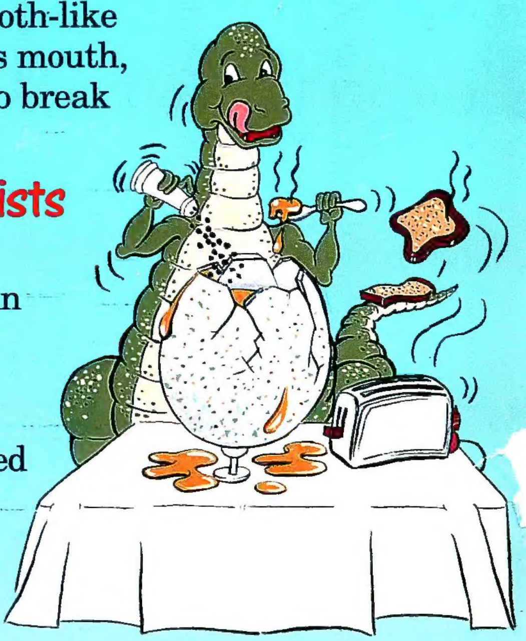
How are fossils kept safe on their way to the lab?

When fossilized dinosaur bones are found they are very carefully dug out of the ground. The exposed bone is wrapped in tissue paper, then encased in plaster-soaked bandages, just as a doctor encases a broken arm or leg. The plaster bandages then set hard and this protects the bones on their journey to the laboratory.



Did dinosaurs eat eggs?

Yes, some dinosaurs did eat the eggs of other animals. *Oviraptor* was named 'egg-thief' because it stole eggs from other dinosaur's nests. It had special, tooth-like structures in its mouth, which it used to break into eggshells.



How do scientists date fossils?

Fossils are found in sedimentary rock. These are rocks that have been moved and changed by wind, sun and rain over millions of years. Certain types of fossils are found in some layers of sedimentary rock. Radioactive elements also play a part in helping to date the remains of dinosaurs. Experts measure the amounts of radioactivity in the dinosaur fossils to help them date the finds.